

What is claimed is:

Sub  
a1

1. ~~A nonvolatile display device comprising:~~

a display element;

5 a control element for controlling a voltage or a current to be applied to said display element to drive said display element; and

10 a nonvolatile data holding section integrated with said control element or connected to said control element and capable of holding control data of said control element in a floating state.

15 2. The display device of claim 1, wherein said control element is formed of a MOS transistor type element, one of a drain and a source of said MOS transistor type element is connected to said display element and the other is connected to a driving line, a gate side of said MOS transistor type element is connected to a control line through said nonvolatile data holding section, and plural sets of said display element, said control element and said nonvolatile data holding section are formed as each pixel  
20 in a matrix.

3. The display device of claim 2, wherein a selective transistor is connected between said nonvolatile data holding section and said control line, and a gate of said selective transistor is connected to a selective line.

25 4. The display device of claim 1, wherein said nonvolatile data holding section is formed of a ferroelectric capacitor.

5. The display device of claim 2, wherein said control element and said nonvolatile data holding section are formed of a transistor having an MFS structure or an MFIS structure in which a ferroelectric capacitor is formed integrally on the gate side of a MOS transistor, a back gate of said MOS transistor is connected to a write line, and the control data can be written to said nonvolatile data holding section between said control line and said write line.

6. The display device of claim 2, wherein said control element and said nonvolatile data holding section are formed of a transistor having an MFMIS structure in which a ferroelectric capacitor is connected to the gate side of a MOS transistor through a common electrode or a wiring, a capacitor is connected between a connecting portion of a gate electrode of said MOS transistor and said ferroelectric capacitor and a ground or a write line, and the control data can be written to said nonvolatile data holding section between said control line and said ground or said write line.

7. The display device of claim 1, wherein said nonvolatile data holding section is constituted by an element utilizing a magnetoresistance effect.

8. The display device of claim 1, wherein said nonvolatile data holding section is constituted by a single electron memory.

9. The display device of claim 1, wherein said

display element is formed by an organic EL element.

10. A method of driving a nonvolatile display device wherein display elements constituting each pixel are arranged in a matrix and ON/OFF of each of said display elements is controlled to sequentially change a display image by a control element provided in said each of said display elements, comprising the steps of:

providing a nonvolatile data holding section in said control element for controlling a driving operation of said each of said display elements;

carrying out a display on a display element having no change in a control state of said display elements, based on the data of said nonvolatile data holding section without applying the display data; and

applying and displaying the new display data to only a display element to be changed in a display state and recording said new display data in said nonvolatile data holding section.

09757494 044404  
FOUO FOUO